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EXAMINER

BROWN, RUEBEN M

ART UNIT PAPER NUMBER

2611

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/679,590

Applicant(s)

LINTON, JEB R.

Examiner

Reuben M. Brown

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 3/15/2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 11 & 15-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Sklar, (U.S. Pat # 5,990,928).

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Considering claim 11, the claimed broadcast satellite system for receiving in a mobile craft, a first signal from a broadcast satellite having a known location relative to a predetermined position system is met by Sklar, col. 8, lines 29-44; col. 9, lines 54-67 thru col. 10, lines 1-11, which teaches that the airplane antenna 38 is directed toward a particular satellite 24, 28.

‘an orientation system for determining at least a first orientation of the vehicle in three dimensions’, reads on the operation of the aircraft inertial navigation system, INS which provides position and attitude data of the airplane to the controller 46, of Sklar, col. 8, lines 30-62.

‘a processor communicating with the orientation system, for determining a first position control data format least first orientation data corresponding to the mobile craft, and from first location of the mobile craft relative to the positioning system, such that the processor is adapted to receive a first input from a user, selecting a first broadcast satellite’ is met by the operation of the controller 46, which receives information data from the INS/GPS receiver, co. 5, lines 61-67; col. 8, lines 45-62 & col. 12, lines 56-67.

Considering claim 15, the GPS system of Sklar reads on the claimed subject matter.

Considering claim 16, see Sklar, col. 5, lines 59-65.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, in view of Lazar, (U.S. Pat # 6,166,686).

Considering claim 13, Sklar discloses the use of well-known GPS system for orienteering, but does not disclose that the true north is also used. However, Lazar teaches utilizing the GPS to determine location and then deriving the true north using the magnetic north, Abstract; col. 3, lines 8-55 & col. 4, lines 5-51. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar, to determine the true north bearing for the known improvement of more effective orienteering, since there is often wide deviation between magnetic north, which is based on the earth's magnetic field lines, and can be found with a compass, and 'true north', which is needed when reading a map to navigate to another object, as taught by Lazar, col. 1, lines 10-55.

3. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar.

Considering claim 14, regarding the claimed feature of storing the orbiting position of a satellite, Sklar teaches tracking the coordinates of the satellites 24 & 28, see col. 8, lines 29-67. Official Notice is taken that at the time the invention was made, memory for storing satellite information was old in the art. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar to store the known orbit of a satellite, at least for the desirable effect of enabling the IFE to plan programming so that passengers could be warned well in advance as to which broadcasts will be available for the duration of their flight.

4. Claims 1-6, 8-10 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, in view of Ayyagari, (U.S. Pat # 6,018,659) and Fukushima, (U.S. Pat # 5,764,185).

Considering amended claims 1 & 12, the claimed system for receiving broadcast satellite transmissions in one of air based, land based, and a sea based vehicle, comprising:

‘an orientation system for determining at least a first orientation of the vehicle in three dimensions’, reads on the operation of the aircraft inertial navigation system, INS which provides position and attitude data of the airplane to the controller 46, of Sklar, col. 8, lines 30-62.

‘a controller communicating with the orientation system, which is adapted to receive the orientation data and receive a first location data corresponding to a first location of the vehicle relative to a predetermined positioning system, such that the controller utilizes the first

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orientation data and first location data to determine a first position control data', is met by the operation of the controller 46, which receives information data from the INS/GPS receiver, col. 8, lines 45-62.

As for the additionally claimed, 'one dimensionally electronically pointable antenna mounted upon a motorized turntable to provide two-dimensional pointing and adapted to receive the first position control data from the controller, resulting in the one dimensionally electronically pointable antenna being pointable in two-dimensions in an open-loop operation, so that a first broadcast satellite signal may be received according to the first position control data, from a satellite having a known location relative to the predetermined positioning system', Sklar teaches that the antenna 38 is pointed at one or more of the satellites 24 or 28 and continuously steered by controller 46, according to the data received from its INS and/or GPS system, col. 6, lines 4-20 & col. 8, lines 45-62.

Regarding the specifically claimed one dimensionally electronically pointable antenna, Sklar discloses that the antenna 38 may or may not be parabolic, col. 3, lines 11-20. However, Ayyagari provides a teaching using a phased array antenna (which reads on one dimensionally pointable antenna) for airborne vehicles, in order to track a target satellite, see col. 5, lines 45-50 & col. 6, lines 1-20. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar with the teachings of Ayyagari using the phased array antenna, at least for the known benefit of a simpler design, other than the parabolic antennas optionally used in Sklar.

‘a direct broadcast satellite receiver adapted to process a first RF signal corresponding to the first broadcast satellite signal received by the electronically-pointable antenna to produce at least one of audio, video and data’ is met by Sklar, col. 5, lines 59-64 & col. 8, lines 63-67.

As for the additionally claimed, ‘a closed-loop feedback system adapted to provided at least one output signal wherein the one dimensionally electronically pointable antenna is pointable in two-dimensions using at least one output signal from the closed-loop operation to receive the broadcast satellite signal’, Sklar does not discuss any closed-loop operation. However, Fukushima, which is in the same field of endeavor discloses an antenna tracking system that is enabled to use both open-loop and closed-loop operation, col. 5, lines 60-67; col. 6, lines 1-67 & col. 7, lines 1-33. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar with the feature of closed-loop operation, at least for the advantage of controlling the antenna orientation, at least partially on the basis of the target signal receiving condition, as taught by Fukushima, col. 2, lines 48-55.

‘a signal lock for automatically activating and deactivating the closed-loop system in response to the first broadcast satellite signal received by the one dimensionally electronically pointable antenna, such that the system is alternatively in closed-loop or open-loop operation’ is met by the disclosure of Fukushima, that teaches closed-loop or open-loop operation may be performed in place of the other, respectively, col. 2, lines 45-52; col. 5, lines 61-67 thru col. 6, lines 1-5 & col. 6, lines 31-48.



Considering claim 2, the turntable, i.e. gear 8a, in Fukushima is substantially flat, which reads in the claimed subject matter, see Fig. 1 & col. 5, lines 12-24.

Considering claim 3, the claimed at least output signal controlling a rotational orientation of the turntable is also met by Fukushima, col. 6, lines 31-67 & col. 7, lines 25-31, which teaches that the closed-loop operation uses the receiving signal level, in its antenna control sequence.

Considering claim 4, as pointed out in the rejection of claim 1, Ayyagari teaches the use of phased array antennas, col. 5, lines 45-50.

Considering claim 5, the antenna 10 of Fukushima is disclosed to be substantially flat within a plane, see Fig. 1. The angle that the antenna 10 of Fukushima points is relative to the plane, see col. 5, lines 5-28.

Considering claim 6, electronic compass & tilt-sensor are necessarily included in the inertial navigation system, INS of Sklar, col. 8, lines 30-61.

Considering claim 8, the claimed technique of an open-loop control using GPS data, corresponds with subject matter mentioned above in the rejection of claim 1, and is likewise treated.

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Considering claim 9, the disclosure of Fukushima of terminating the closed-loop operation when the pointing error goes below a threshold, (col. 6, lines 54-65) reads on the claimed feature of 'detecting a first loss of the first broadcast satellite signal and to activate the open-loop operation'.

Considering claim 10, the closed loop operation also controls the turntable and look angle of the antenna system, see Fig. 3 & col. 6, lines 44-54.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, Ayyagari & Fukushima, further in view of Donahue, (U.S. Pat # 5,526,022).

Considering claim 7, Sklar discusses orientating the airplane and controlling the antenna at least using the airplane navigational system, but does not teach using solid-state electromagnetic field sensor and fluid field sensor. However, Donahue teaches an orientation system with a wide applicability, (col. 14, lines 24-45) such as any automatic leveling device, robotic feedback control, and motorized moving equipment, which uses both the earth's magnetic field and a fluid tilt sensor in determining the desired orientation, see col. 3, lines 1-12; col. 7, lines 59-67 & col. 9, lines 11-31. It would have been obvious for one of ordinary skill in the art at the time the invention was filed, to operate the navigation system of Sklar using the electromagnetic field sensor and fluid tilt field sensor used in Donahue, at least for the desirable benefit of more accurately determining the proper orientation of a device, as taught by Donahue,

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col. 1, lines 45-49, which obviates the need to rely solely on the existence of a fixed object in determining the orientation of another object.

### *Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) Morchin, Nosal Teach the use of phased array antenna for receiving satellite signals aboard an airplane.

B) Travers Orienteering an object based upon electromagnetic field/ tilt sensor.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

(703) 872-9306, (for formal communications intended for entry)

**Or:**

(703) 746-6861 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

*Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA., Sixth Floor (Receptionist).*

Any inquiry concerning this communication or earlier communications from the  
examiner should be directed to Reuben M. Brown whose telephone number is (703)305-2399.  
The examiner can normally be reached on M-F(8:30-6:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
supervisor, Christopher Grant can be reached on (703)730-4755. The fax phone numbers for the  
organization where this application or proceeding is assigned is (703) 872-9306 for regular  
communications and After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the receptionist whose telephone number is (703)305-4700.

Reuben M. Brown

  
**HAITRAN**  
**PRIMARY EXAMINER**